

ASH GROVE CEMENT COMPANY



WESTERN REGION
INTER-OFFICE MEMORANDUM
PORTLAND OFFICE

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Date: April 19, 1993
To: Steve Sheridan
From: Nate Fernow *Nat*
Subject: Options for NO_x in Seattle & Mix Burnability
Copies: Ken Rone, Dan Peters, Trygve Hille, Pat Noon,
Jerry Brown, Jim Post, Hans Steuch, Bill Siemering

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The NO_x emissions produced in the Seattle Plant can be attributed to the high flame temperatures and the availability of excess O₂ in the burning zone of the kiln. While the higher O₂ is necessary for the functioning of the excess air calciner, this high a flame temperature in not.

The NO_x emission is also a function of the production rate of the kiln system. The burnability of the kiln feed and the free lime target requested can also have an influence on the amount of NO_x that is generated.

The BACT, Best Available Control Technology, review that was needed for permitting compares the plant to others permitted on a pounds per ton of clinker basis. The BACT Clearing house records show a range of 1.6 #/ton to 5.9 #/ton with an average of 3.4 #/ton. Our permit is for 4.6 #/ton (@2200 t/day) because of the excess air calciner.

The Type II kiln feed burned at the plant is easier to burn than the Type I due to its chemical composition. This easier burning mix should be able to be converted to clinker while generating a lower rate of NO_x per ton of clinker. Unfortunately in the past this mix has been burned to a very low free lime and hence there was no definite change in amount of NO_x produced.

It is a real possibility that the setting times and strengths (7 & 28 Day) of the current Type I could be matched by a finer grind of the current Type II clinker.

When we make the next run of Type II clinker the free lime target of 1% needs be met so we can evaluate the NO_x reduction potential. This clinker can then be tested at various fineness levels to confirm its performance. Meanwhile Neil Eastvold will review the current Seattle Type II concrete data from the Spokane market.